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(TAJIKISTAN--HEALTH RESORTS, WATERING PLACES, ETC.)
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1. Fysikalni ustav Karlovy university, Praha.

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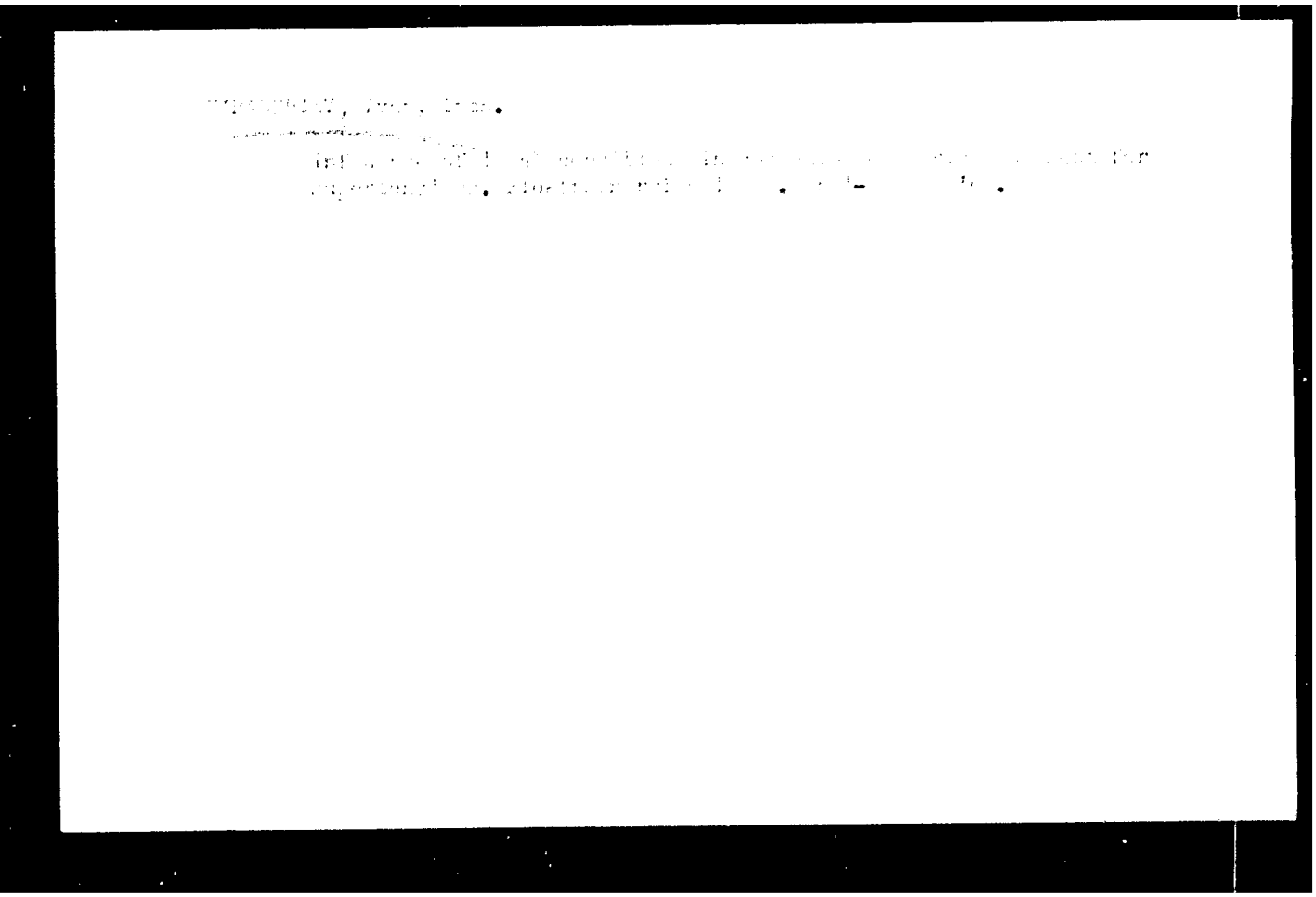

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Uncl.

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1. Moscow Higher School of Technology of the Light Industry (for all except Benes and Blazej). 2. Slovak Higher School of Technology, Bratislava for Benes and Blazej).

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Subject: Hydroengineering building and construction

Gidrotekhnicheskoye, stroitel'stvo, 12, 1946.

KIRAKOSOV, Viktor Paruirovich, kandidat tekhnicheskikh nauk; SHEVELOV, B.N., inzhener, redaktor; SAFONOV, P.V., redaktor izdatel'stva; MEDVEDEV, L.Ya., tekhnicheskiy redaktor

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(Foundations) (Hydraulic engineering)

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Dissertations presented for science* and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

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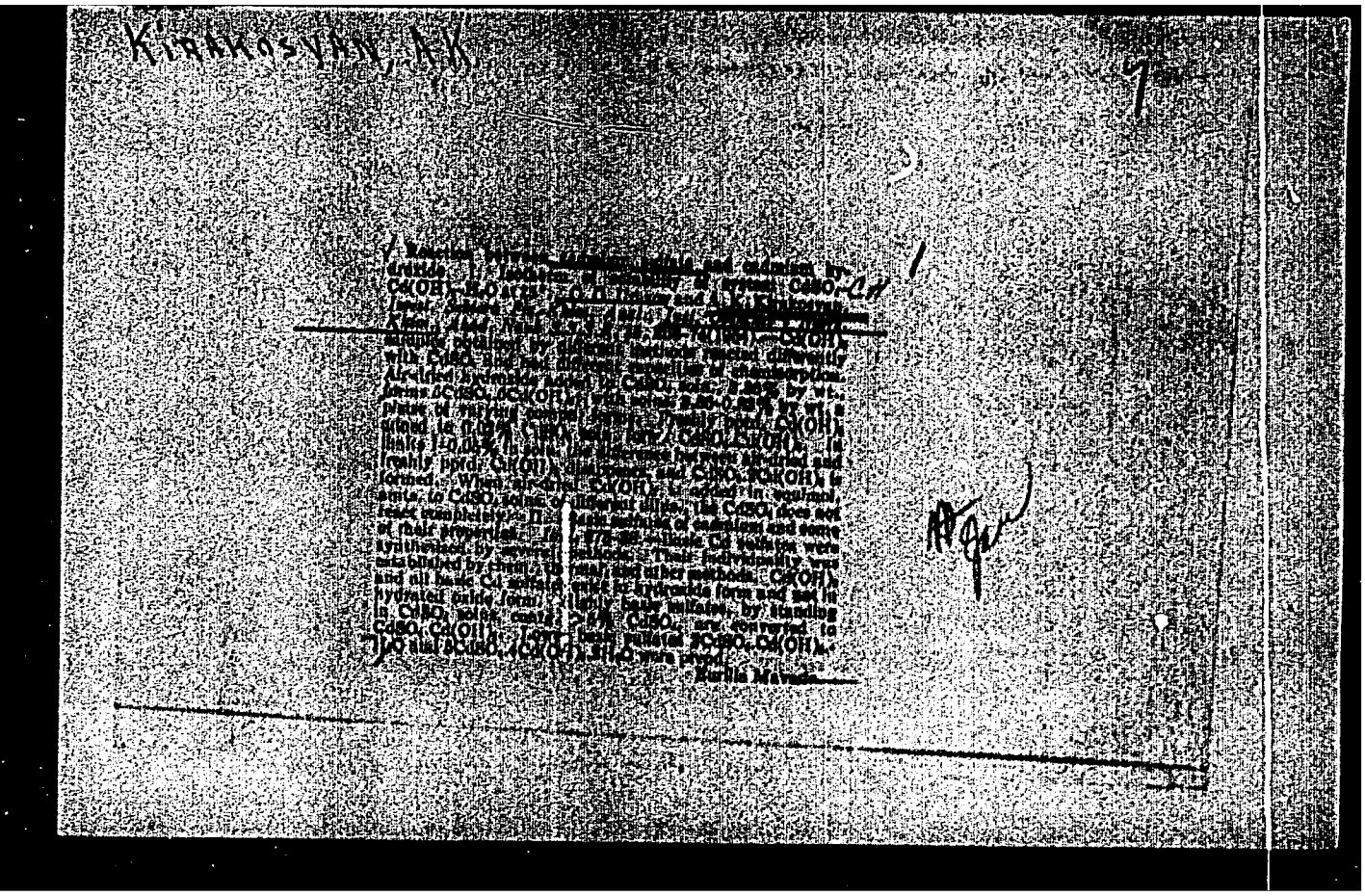
1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova Akademii nauk SSSR. (Ammines) (Sulfates) (Systems (Chemistry))

KIRAKOSYAN, A.K.

Production of cadmium sulfate ammine and cadmium ammonium sulfate from aqueous solutions. III. Solubility isotherm of the system $CdSO_4$-NH_4OH-H_2O at 25°. G. G. Urazov and A. K. Kirakosyan. *Izvest. Sektora Fiz.-Khim. Analiza, Akad. Nauk S.S.S.R.* 23, 249–57 (1953).—In the systems $(NH_4)_2SO_4$-NH_4OH-H_2O and $Cd(OH)_2$-NH_4OH-H_2O no chem. compds. were formed. In the system $CdSO_4$-$(NH_4)_2SO_4$-H_2O the sol. $CdSO_4.(NH_4)_2SO_4.6H_2O$ was formed. In the system $CdSO_4$-$Cd(OH)_2$-H_2O, when freshly ppted. $Cd(OH)_2$ was used, $CdSO_4.Cd(OH)_2$ and $CdSO_4.2Cd(OH)_2$ were formed. The latter formed when the $CdSO_4$ content was 0.15–0.00%. The diagonal section $CdSO_4$-$2NH_4OH$ is divided into 2 parts. A metathetical reaction first takes place. As the NH_4 concn. increases $[Cd.(NH_3)_6(H_2O)]SO_4$ is formed up to 12.5% NH_4. Further increase in NH_4 when the soln. is satd. with $CdSO_4$ causes salting out of the complex. Study of other sections on the diagram revealed the formation of numerous complexes within the system. Along the diagonals of the system no stable compds. are formed. The system comprises 7 crystn. fields: $CdSO_4.8/3H_2O$, $CdSO_4.(NH_4)_2SO_4.6H_2O$, $(NH_4)_2SO_4$, $[Cd(NH_3)_4.(H_2O)_2]SO_4.(NH_4)_2SO_4$, $[Cd(NH_3)_4(H_2O)]SO_4.(NH_4)_2SO_4$, $[Cd(NH_3)_6(H_2O)_2]SO_4$, and $Cd(OH)_2.H_2O$.

M. Hoseh



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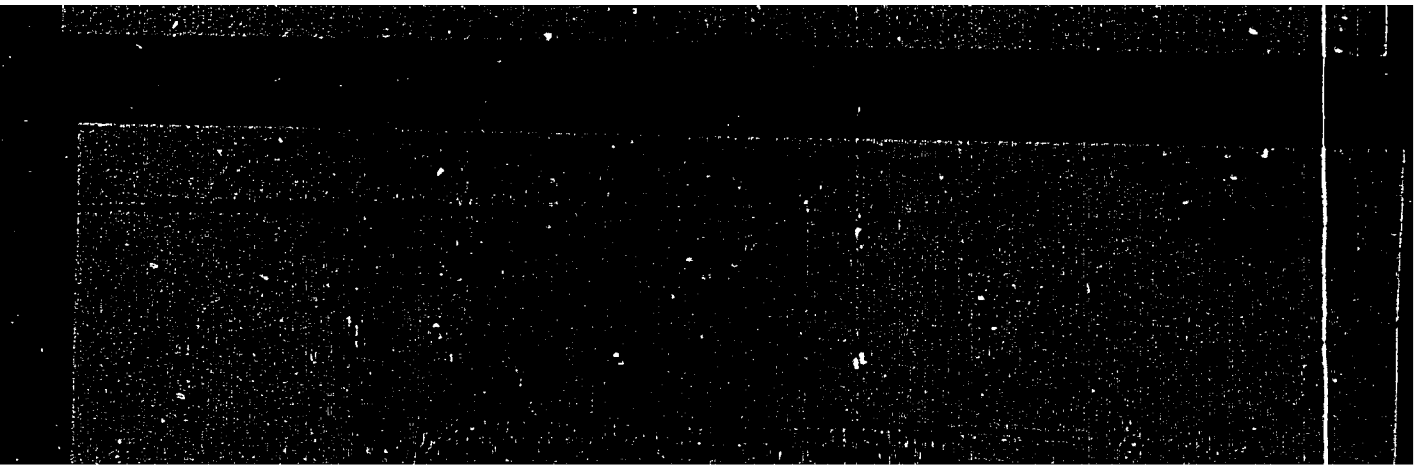
1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova Akademii nauk SSSR.
(Cadmium sulfate)



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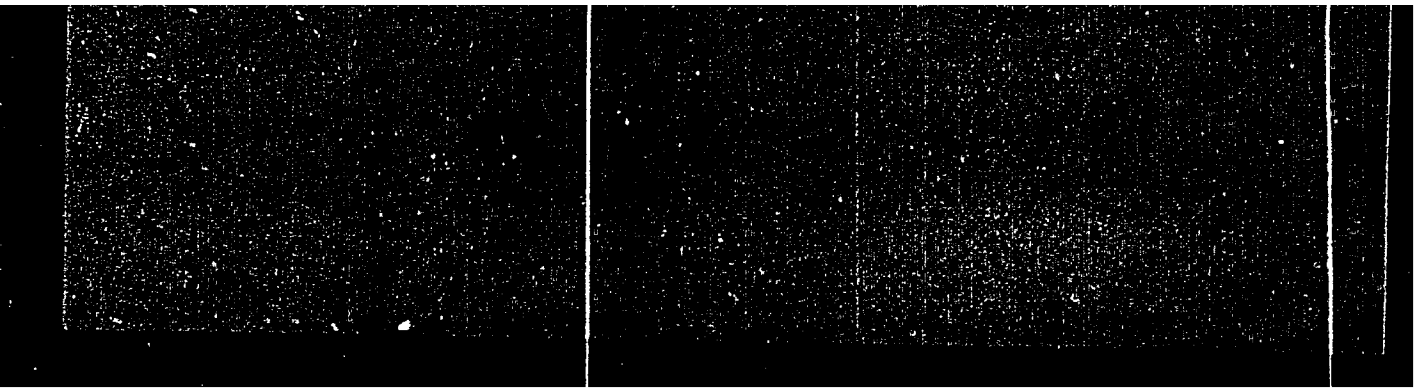

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Kirakosyan, A. K.

USSR/ Chemistry

Card 1/1 Pub. 22 - 31/54

Authors : Urazov, G. G., Academician, and Kirakosyan, A. K.

Title : Reaction between ammonia and divalent metal halides in an aqueous medium. Solubility of cadmium chloride in aqueous ammonia solutions

Periodical : Dok. AN SSSR 106/2, 290-293, Jan 11, 1956

Abstract : The reaction between cadmium chloride and ammonia in an aqueous medium was investigated by the isothermal solubility method. The zone of crystallization of the hydroxide residues and the ammoniates was studied at a temperature range of from 0 to 25°. It was found that the solubility of cadmium chloride in the zone of crystallization of higher $CdCl_2$ ammoniates depends upon temperature. The changes in the composition of compounds crystallizing at 25° are explained. Nine references: 1 Russ., 5 Germ. and 3 French (1842-1912). Diagrams.

Institution : Acad. of Sc., USSR, Inst. of Gen. and Inorgan. Chem. im. N. S. Kurnakov

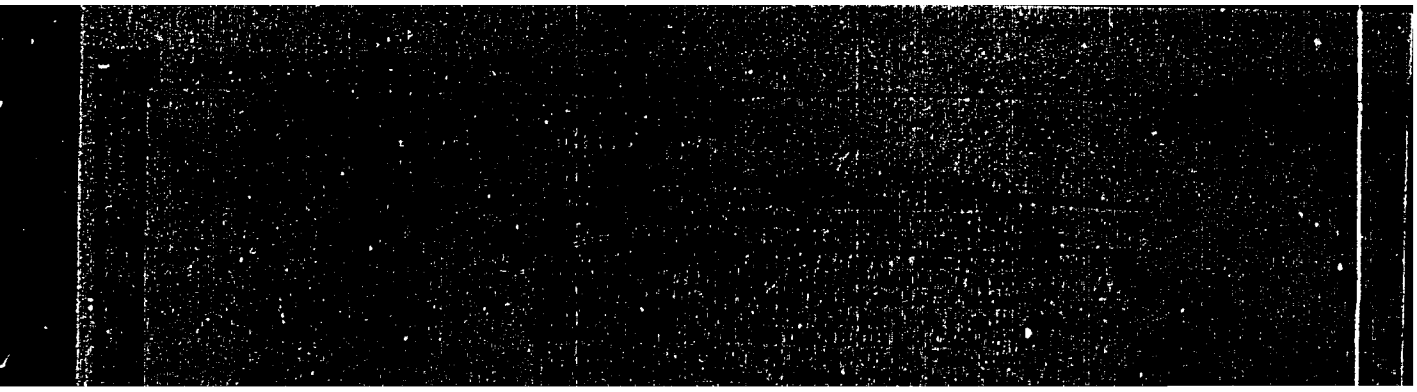
Submitted : September 30, 1955

URAZOV, G.G. [deceased]; KIRAKOSYAN, A.K.; GALUSTYAN, V.D.

Interaction between ammonium and the halides of divalent metals in an aqueous medium. Part 2: Solubility of cupric bromide in aqueous solutions of ammonia. Zhur. neorg. khim. 2 no.5:1105-1114 My '57. (MLRA 10:10)

1. Institut obshchey i neorganicheskoy khimii imeni N.S. Kurnakova, Akademii nauk SSSR.

(Copper bromides) (Ammonia)



APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R000722610010-2"

20-114 3-31/60

AUTHORS: Urazov, G. G., Member of the AN USSR, Kirakosyan, A. K., Mkhitaryan, R. S.

TITLE: An Investigation of the Interaction Between Ammonia and Zinc Chloride in Water Solutions (Izucheniye vzaimodeystviya mezhdu ammiakom i khloristym tsinkom v vodnoy srede)

PERIODICAL: Doklady Akademii Nauk SSSR, 1957, Vol 114, Nr 3, pp 564-567 (USSR)

ABSTRACT: An investigation of the interaction between ammonia and zinc chloride in water solutions during an entire phase of the concentration of the solution of the latter at different temperatures has never been carried out. Anhydrous hexammine zinc chloride has already been obtained earlier by blowing gaseous ammonia through anhydrous zinc chloride. The expansion capacity of the dissociation of hexammine zinc chloride and its decomposition products was determined as well. Monoaquo--pentammine zinc chloride was produced by cooling a saturated ammonia solution of zinc chloride. Tetrammine zinc chloride with different water content was obtained by cooling the ammonia solution of zinc chloride. The decomposition tempera-

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An Investigation of the Interaction Between Ammonia and Zinc Chloride in Water Solutions

with a content of crystallized water or anhydrous, was produced by different methods: dissolution of zinc oxide in chloral ammonia solutions, blowing of ammonia gas through zinc chloride solution, thermal decomposition of higher ammonia compounds of zinc chloride, etc. The dissociation temperatures and the beginning of decomposition were determined. Monoammine zinc chloride is the final product resulting from thermal decomposition of higher ammonia compounds and can be distilled without disintegrating. There then follows an experimental part with description of methods of production. Discussion of results: The crystallization of basic salts containing ammonia is completed with a content of 9.04 % weight of ammonia and 18.92 % weight of zinc chloride in a fluid phase of equal weight. The zinc chloride content rises with increasing concentration of ammonia and is directly proportional to the content of the latter in the fluid phase. The crystallization of the basic ammonia salts of zinc chloride is the result of a partial rearrangement-reaction process between ammonia hydroxide and zinc chloride. With an increasing concentration of ammonia in the fluid phase the exchange between the two substances decreases according to

parabolic dependence. The solid phase of the crystallisation of basic salts of zinc chloride are structures of varying composition. They all, without exception, contain ammonia. Their composition is $ZnCl_2 \cdot nZn(OH)_2 \cdot sNH_3 \cdot xH_2O$. The coefficients n, s and x are of different values, integer figures as well as fractions. The content of ammonia on the solid phase depends on its concentration in the fluid phase. The more of it contained in the fluid phase, the greater is its portion in the solid phase. The content of zinc hydroxide decreases accordingly. In spite of different chemical composition, these salts possess the same properties (thermal, crystalloptical, etc.) and similar Debaille diagrams. Agreement of some properties as well as of the crystal lattice with their isomorphous group substitution, is probable as well of OH and NH_3, possibly also of H_2O and NH_3. Furthermore, the crystallization and solubility as well as the temperature curve (fusion and destillation) of the substances treated is described. There are 4 figures and 11 references, 1 of which is Soviet.

K. Rakoshyan, A. K.

AUTHORS: Urazov, G. G. (Deceased), Kirakosyan, A. K., Mkhitaryan, R. S. 78-2-30/43

TITLE: Investigations Concerning the Interaction Between Ammonia and Zinc Salts in an Aqueous Medium (Izucheniye vzaimodeystviya mezhdu ammiakom i solyami tsinka v vodnoy srede) I. The Solubility of Zinc Chloride in Aqueous Ammonia Solutions (I. Rastvorimost' khloristogo tsinka v vodnoammiachnykh rastvorakh)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol.3, Nr 2, pp.464-474 (USSR)

ABSTRACT: The solubility of zinc chloride in aqueous ammonia solutions of all concentrations of ammonia in the liquid phase was investigated. The solid phases of the system $ZnCl_2$-NH_3H_2O at an ammonia-content of 9,04 % at 25°C crystallize to basic salts of different composition. The composition of these basic salts can be expressed by the following general formula: $ZnCl_2 . n\ Zn(OH)_2 . s\ NH_3 + x\ H_2O$, in which the coefficients n, s and x denote different values in integer or fractional

Card 1/3

Investigations Concerning the Interaction Between Ammonia and Zinc Salts in an Aqueous Medium. I. The Solubility of Zinc Chloride in Aqueous Ammonia Solutions

numbers. The basic salts were investigated thermally, crystallographically and by X-ray analysis. The crystallization of the ammoniacal compounds in the system $ZnCl_2$-NH_3-H_2O was performed at temperatures of 0° and 25° C. In the system $ZnCl_2$-NH_4-H_2O at 0°C two compounds of the following composition crystallize: $ZnCl_2$. 2,2 NH_3 . 0,5 H_2O and $ZnCl_2$. 5,75 NH_3 . 0,75 H_2O, and at 25°C: $ZnCl_2$. 2,2 NH_3 . 0,5 H_2O and $ZnCl_2$. 5,35 NH_3 . 0,33 H_2O. The crystallization of $ZnCl_2$. 2,2 NH_3 . 0,5 H_2O at 0°C and 25°C begins at 10,96 % and ends at 24,46 % of ammonia in the aqueous phase. The crystallization of $ZnCl_2$. 0,7 NH_3 . 0,75 H_2O at 0°C and $ZnCl_2$. 5,35 NH_3 . 0,33 H_2O at 25°C begins at 24,64 % ammonium in the aqueous phase. The crystallization proceeds irregularly and is dependent on the addition of ammonium in the aqueous phase. At a higher concentration the crystallization slows down. The thermographic analysis showed that in basic salts two endothermic effects occur, at 110-125°C dehydration occurs and at 220-225°C the hydroxide form is converted into oxide. The thermographic analyses of $ZnCl_2$. 2,2 NH_3 . 0,5 H_2O showed three endothermic effects: at 65°C and at 125°C -

Kirakosyan, A. K.

AUTHORS: Urazov, C. G. (Deceased), Kirakosyan, A. K., 78-2-31/43
Mkhitaryan, R. S.

TITLE: Investigations Concerning the Interaction Between Ammonia and Zinc Salts in an Aqueous Medium (Izucheniye vzaimodeystviya mezhdu ammiakom i solyami tsinka v vodnoy srede)
II. The Solubility of Zinc Bromide in Aqueous Ammoniacal Solutions (II. Rastvorimost' bromistogo tsinka v vodnoammiachnykh rastvorakh)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 2, pp. 475-483 (USSR)

ABSTRACT: The solubility of zinc bromide in aqueous ammonia solutions was determined. It is shown that up to 11,6 % ammonia in the aqueous phase ammoniacal basic salts of zinc bromide of different composition crystallize. The interaction of ammonia and zinc bromide in an aqueous medium takes place in two phases: at a low concentration of ammonia, ammoniacal basic salts crystallize and at a higher concentration ammoniacates crystallize. The basic salts can be expressed by the following general formula:

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Investigations Concerning the Interaction Between Ammonia and Zinc Salts in an Aqueous Medium. II. The Solubility of Zinc Bromide in Aqueous Ammoniacal Solutions

78-2-31/43

$ZnBr_2 \cdot n\ Zn(OH)_2 \cdot s\ NH_3 \cdot x\ H_2O$

where the coefficients n, s and x may have different values (n varies between 0,9 - 3,2, s between 1,5 - 2,0). The thermographic analyses of the basic salts showed that ammonia escapes at 112, 135 and 240-250°C. A complete escape of ammonia by thermal analysis does not occur. The residue after treatment at 250°C has the following composition:

$$ZnBr_2 \cdot 1{,}6\ ZnO \cdot NH_3.$$

The X-ray analyses of the basic salts indicate a crystalline structure. At 0°C $ZnBr_2 \cdot 4NH_3$ and $ZnBr_2 \cdot 5{,}25\ NH_3 \cdot 0{,}5\ H_2O$, crystallize from the system $ZnBr_2$-NH_3-H_2O, and at 25°C - $ZnBr_2 \cdot 5{,}5\ NH_3$. All ammoniacates are unstable compounds and decompose in air at room temperature. From the thermographic analysis of $ZnBr_2 \cdot 4NH_3$ two endothermic effects are to be

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Investigations Concerning the Interaction Between Ammonia and Zinc Salts in an Aqueous Medium. II. The Solubility of Zinc Bromide in Aqueous Ammoniacal Solutions

78-2-31/43

seen: 1. at 145-155° C- corresponds to the escape of 1 mol. ammonium, the residue has a composition of $ZnBr_2 \cdot 3NH_3$; 2. at 240-250°C - again 1 mol. ammonium escapes and $ZnBr_2 \cdot 2NH_3$ remains as residue. At a temperature higher than 250°C the decomposition of diamino-zinc-bromide occurs. The thermographic curves of $ZnBr_2 \cdot 25NH_3 \cdot 0,5H_2O$ and $ZnBr_2 \cdot 5,5NH_3$ are equal. These curves have four endothermic effects. The first one occurs at 47-50°C under the escape of ammonium and the formation of $ZnBr_2 \cdot 5NH_3$, the second effect at 80°C under the giving off of 1,5% ammonium and the formation of $ZnBr_2 \cdot 4NH_3$. The two other effects are in agreement with the thermographic decomposition of tetramine-zinc-bromide. On heating of the ammoniacates, even at a temperature higher than 500°C, no complete escape of ammonium is attained.

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Investigations Concerning the Interaction Between Ammonia and Zinc Salts in an Aqueous Medium. II. The Solubility of Zinc Bromide in Aqueous Ammoniacal Solutions 78-2-31/43

There are 8 figures, 4 tables, and 6 references, 1 of which is Slavic.

SUBMITTED: February 7, 1957

AVAILABLE: Library of Congress

Card 4/4

KIRAKOSYAN, A. K.

AUTHORS: Urazov, G. G.,(Deceased),Kirakosyan, A. K., Mkhitaryan, P. S. 78-2-32/43

TITLE: Investigations on the Interaction Between Zinc Salts and Ammonia in an Aqueous Medium (Izucheniye vzaimodeystviya mezhdu solyami tsinka i ammiakom v vodnoy srede) III. The Solubility of Zinc Iodide in Aqueous Ammoniacal Solutions (III. Rastvorimost' yodistogo tsinka v vodno-ammiachnykh rastvorakh)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 2, pp.484-490 (USSR)

ABSTRACT: The solubility of zinc iodide in aqueous ammoniacal solutions at 0° and 25°C was determined. The crystallization of basic salts in the system ZnJ_2-NH_3-H_2O terminates at 2,82% NH_3.

The ammoniacal basic salts of zinc iodide have the following general formula: $ZnJ_2 . nZn(OH)_2 . s\ NH_3 . x\ H_2O$, where the coefficients n, s and x may have different values. At 0° in the system ZnJ_2-NH_3-H_2O the following ammoniacates

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Investigations on the Interaction Between Zinc Salts and Ammonia in an Aqueous Medium
III. The Solubility of Zinc Iodide in Aqueous Ammoniacal Solutions

78-2-32/43

crystallize: $ZnJ_2 \cdot 4\ NH_3 \cdot H_2O$ and $ZnJ_2 \cdot 5\ NH_3 \cdot H_2O$, and at 25°C: $ZnJ_2 \cdot 4\ NH_3 \cdot H_2O$ and $ZnJ_2 \cdot 5\ NH_3 \cdot 0{,}5\ H_2O$.

In the thermal analysis of the ammoniacal basic salts dehydration occurs at 100° and 135°C and at 205°C a conversion of zinc hydroxide to zinc oxide and a partial escape of NH_3 is to be observed. In the thermographic analysis of the ammoniacates $ZnJ_2 \cdot 5\ NH_3 \cdot H_2O$ three endothermic effects occur: 1) at 35 - 50°C with giving off water; 2) at 100 - 105°C with giving off 1 mol. ammonium, $ZnJ_2 \cdot 4NH_3H_2O$ remaining as a residue; 3) at 195 - 215°C under the formation of anhydrous triamine-zinc-iodide $ZnJ_2 \cdot 3NH_3$.

In the decomposition of $ZnJ_2 \cdot 4\ NH_3 \cdot H_2O$ two endothermic effects occur: 1) at 100 - 110°C with giving off coarse moisture; 2) at 195 - 215°C with giving off crystal water and 1 mol. ammonium and the formation of $ZnJ_2 \cdot 3NH_3$. On further heating the triamine decomposes.

The ammoniacates of zinc iodide are well crystallizable bodies and are difficult to dissolve in concentrated ammoniacal solutions. There are 6 figures, 3 tables, and

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Investigations on the Interaction Between Zinc Salts and Ammonia in an Aqueous Medium 78-2-32/43
III. The Solubility of Zinc Iodide in Aqueous Ammoniacal Solutions

7 references, 1 of which is Slavic.

SUBMITTED: February 7, 1957

AVAILABLE: Library of Congress

Card 3/3

KIRAKOSYAN A.K.

AUTHORS: Urazov, G. G.,(Deceased), Kirakosyan, A. K., Mkhitaryan, R. S. 78-2-33/43

TITLE: Investigations Concerning the Interaction Between Zinc Salts and Ammonia in an Aqueous Medium (Issledovaniye vzaimodeystviya mezhdu solyami tsinka i ammiakom v vodnoy srede)
IV. The Solubility of Zinc Nitrate in Aqueous Ammoniacal Solutions (IV. Rastvorimost' azotnokislogo tsinka v vodnoammiachnykh rastvorakh)

PERIODICAL: Zhurnal Neorganicheskoy Khimii, 1958, Vol. 3, Nr 2, pp. 491-497 (USSR)

ABSTRACT: The authors investigated the reaction between zinc nitrate and NH_3 in an aqueous medium by isothermal solubility at temperatures of 0° and $25^\circ C$. The formation of the basic zinc-nitrate salt at $25^\circ C$ is terminated at a concentration of 18,77 % NH_3, 50,14 $Zn(NO_3)_2$ and $NH_4(NO_3)$. The general formula for the basic zinc-nitrate salt is as follows: $Zn(NO_3)_2 \cdot nZn(OH)_2 \cdot sNH_3 \cdot x\ H_2O$, where n, s and x have different values. The ammoniacal basic salts of zinc

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Investigations Concerning the Interaction Between Zinc Salts and Ammonia in an Aqueous Medium
IV. The Solubility of Zinc Nitrate in Aqueous Ammoniacal Solutions

78-2-33/43

nitrate are highly disperse and by X-ray analysis the same crystal-structure was found for all compounds. In the system $Zn(NO_3)_2$-NH_3-H_2O at 0°C $Zn(NO_3)_2 \cdot 4\ NH_3 \cdot 0{,}5\ H_2O$ crystallizes and at 25°C $Zn(NO_3)_2 \cdot 4\ NH_3 \cdot 0{,}25\ H_2O$. All ammoniacates are resistant to atmospheric influence. The thermographic analyses of tetramine-zinc-nitrate with 0,5 and 0,25 mol H_2O are equal. In the thermal decomposition three endothermic effects and one exothermic effect occur. At 28 - 30°C the compounds lose the coarse moisture, at 130°C the crystal water completely escapes and at 200 - - 210°C the melting of anhydrous tetramine-zinc-nitrate occurs. At 205-375°C with an exothermal reaction a spontaneous decomposition of the ammoniacates under formation of ZnO takes place. There are 8 figures, 3 tables, and 7 references, 3 of which are Slavic.

SUBMITTED: February 7, 1957

AVAILABLE: Library of Congress

Card 2/2

AUTHORS: -Kirakosyan, A. K., Galustyan, V. D. SOV/78-3-8-33/48

TITLE: The Solubility of Copper Nitrate in Aqueous Ammonia Solutions (Rastvorimost' azotnokislov medi v vodnoammiachnykh rastvorakh)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1958, Vol. 3, Nr 8, pp. 1925-1933 (USSR)

ABSTRACT: The solubility of copper nitrate in aqueous ammonia solutions at 0 and 25°C as well as the solid phases were investigated. The chemical reactions in the copper nitrate, ammonia and water systems take place in two directions: 1) Crystallization of basic salts. 2) Crystallization of ammoniates.
The ammonia containing basic salts of copper acetate have a variable composition and the same crystallographic structure. The basic copper salts may be expressed by the following general formula: $Cu(NO_3)_2 \cdot nCu(OH)_2 \cdot sNH_3 \cdot xH_2O$; s, n, x have different values. The ammonia containing basic copper nitrate salts are fine crystalline deposits; they were investigated by thermal, crystal-optical and x-ray analyses. The thermograms taken display two endothermal effects and one exothermal effect. The endothermal effects occur at 115°C and 185°C and point to a

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The Solubility of Copper Nitrate in Aqueous Ammonia Solutions

dehydration of the basic salts. At 265°C the bonds are decomposed under the formation of copper oxide.
In the system $Cu(NO_3)_2$-NH_3-H_2O also the ammoniates were crystallized at 0 and 25°C. Monoequotetramine copper nitrate ($Cu(NO_3)_2 \cdot 4NH_3 \cdot H_2O$) was crystallized. This took place without difficulties; the compound decomposed under the separation of water and ammonia forming $Cu(NO_3)_2$ 3,5 NH_3. Also the following compounds were isolated: $Cu(NO_3)_2 \cdot 4NH_3$, $Cu(NO_3)_2 \cdot 2NH_3$.
There are 8 figures, 4 tables, and 9 references, 2 of which are Soviet.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova, Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov, AS USSR)

SUBMITTED: June 10, 1957

URAZOV, G.G. [deceased]; KIRAKOSYAN, A.K.; GALSTYAN, V.D.

Interaction between copper sulfate and ammonia in water. Izv. AN Arm.SSR. Khim.nauki 11 no.4:249-262 '58. (MIRA 11:11)

1. Institut obshchey i neorganicheskiy khimii im N.S. Kurnakova AN SSSR.

(Copper sulfate) (Ammonia)

7(4) SOV/76-4-4-25/44

AUTHORS: Kirakosyan, A. K., Tananayev, I. V.

TITLE: Investigation of the Complex Formation of Zirconium in Solution by the Ion Exchange Method (Izucheniye kompleksoobrazovaniya tsirkoniya v rastvore s ispol'zovaniyem ionnogo obmena)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959 Vol 4, Nr 4, pp 852-856 (USSR)

ABSTRACT: The authors investigated the complex formation of zirconium sulphate with oxalic, sulphuric and citric acid by means of the cation exchangers KU-1 and KU-2 under dynamic conditions. The complex ion $[Zr(C_2O_4)_4]^{4-}$ was found in the system $Zr(SO_4)_2$-$H_2C_2O_4$-H_2O. The compound $(Zr_2O_3)C_2O_4$ is formed at a ratio of the components of $H_2C_2O_4$: $Zr(SO_4)_2$ = 0.5. The adsorption of zirconium on both cation exchangers in the NH_4-, Na- and H-form in dependence of the oxalic acid content is shown in figures 2 and 3. In the system $Zr(SO_4)_2$-$H_3C_6H_5O_7$-H_2O zirconium is completely desorbed at the ratio $H_3C_6H_5O_7$:$Zr(SO_4)_2$=5.

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Investigation of the Complex Formation of Zirconium in Solution by the Ion Exchange Method

The complex $\left[Zr_2(Cit)_7\right]^{x-}$ is produced. At a ratio of the components of $H_3Cit : Zr(SO_4)_2 \leqslant 0.34 - 0.36$ the adsorption of zirconium on the cation exchangers decreases rapidly with increasing ratio of the components. Dizirconyl citrate is probably formed herein. Figure 4 shows the adsorption of zirconium on the cation exchangers in the H^+-, Na^+, and NH_4^+-form in dependence of the concentration of citric acid. In the system $Zr(SO_4)_2$-H_2SO_4-H_2O the zirconyl ion is completely desorbed at a ratio of $H_2SO_4 : Zr(SO_4)_2 \approx 75$ (concentration of sulphuric acid: 1.5 mols/l). It results from the investigations that direct determination of the composition of the complex ions by the method of ion exchange is only possible with compounds which are in weakly dissociated state present in the solution. There are 5 figures and 7 references, 4 of which are Soviet.

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SOV/78-4-4-23/44

Investigation of the Complex Formation of Zirconium in Solution by the Ion Exchange Method

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences, USSR)

SUBMITTED: January 11, 1958

Card 3/3

KIRAKOSYAN, A.K.

Solubility of cadmium bromide in aqueous ammonia solutions.
Zhur.neorg.khim. 5 no.1:214-218 Ja '60.
(MIRA 13:5)

1. Institut obshchey i neorganicheskoy khimii im. N.S.
Kurnakova AN SSSR.
(Cadmium bromide)

KIRAKOSYAN, A.K.

Interaction between zinc sulfate and ammonia in water. Zhur. neorg. khim. 5 no.4:953-959 Ap '60. (MIRA 13:7)

1. Institut obshchey i neorganicheskoy khimii im. N.S. Kurnakova Akademii nauk SSSR.
(Zinc sulfate) (Ammonia)

KIRAKOSYAN, A.K.

Solubility of cadmium iodide in aqueous ammonia solutions. Zhur. neorg. khim. 5 no.8:1806-1812 Ag '60. (MIRA 13:9)

1. Institut obshchey i neorganicheskoy khimii im.N.S. Kurnakova Akademii nauk SSSR.

(Cadmium iodide)

S/078/60/005/009/035/040/XX
B017/B058

AUTHORS: Kirakosyan, A. K., Stogova, A. V.

TITLE: Study of the Precipitation Reaction of the Basic Copper Sulfates With Ammonia

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 9, pp. 2088 - 2094

TEXT: The interaction of copper sulfate with ammonia in aqueous phase as well as the composition of the solid phases appearing thereby at 25°C were studied. Five test series were conducted for studying the precipitation reaction of basic copper sulfates. The initial mixtures contained 1.05, 0.5, 0.26, 0.1, and 0.05 mol/l copper sulfate. The ratio of the components NH_3 : $CuSO_4$ varied from 0.1 to 4.0. The interactions in the system $CuSO_4$ - NH_3 - H_2O at varying initial concentrations of the copper sulfate solutions are tabulated and shown in Figs. 1-5. It follows from the results that the precipitation of basic copper sulfates proceeds in two stages. In the first stage, ammonia acts as basic precipitant and the

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reaction product is basic copper sulfate in the second stage, a dissolution of the basic copper sulfate sets in on the addition of an NH_3 excess. The dependence of the pH value (measured by means of the ЛП-5 (LP-5) tube potentiometer) of the solutions in an equilibrium state on the ratio NH_3 : $CuSO_4$ in the initial mixture is given in Fig. 6. The dependence of the precipitate composition on the ratio NH_3 : $CuSO_4$ in the initial mixture is graphically represented in Fig. 7. From the diagrams it can be seen that the precipitated basic copper sulfates have no constant composition in the system $CuSO_4$ - NH_3 - H_2O. The more concentrated the initial solutions of copper sulfate, the richer in copper sulfate are the precipitates. Copper hydroxide precipitates predominantly from very diluted solutions of copper sulfate (less than 0.05 mol/l) and at a ratio of the compounds NH_3 : $CuSO_4$ = 1.5. In the range investigated, two types of basic sulfates were found which crystallize: $CuSO_4 \cdot nCu(OH)_2 \cdot xH_2O$ and $CuSO_4 \cdot nCu(OH)_2 \cdot sNH_3 \cdot xH_2O$. There are 7 figures, 1 table, and 5 references:

Study of the Precipitation Reaction of the Basic Copper Sulfates With Ammonia

S/078/60/005/009/035/040/XX
B017/B058

4 Soviet and 1 German.

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR)

SUBMITTED: June 9, 1959

Card 3/3

S/078/60/005/009/036/040/XX
B017/B058

AUTHORS: Kirakosyan, A. K., Yeliseyev, A. A

TITLE: The Interaction of Cadmium Sulfate With Ammonia in the Aqueous Medium

PERIODICAL: Zhurnal neorganicheskoy khimii, 1960, Vol. 5, No. 9, pp. 2095 - 2101

TEXT: The properties of basic cadmium sulfates, especially those containing ammonia, were studied by thermal- and X-ray phase analysis. The composition of the basic cadmium sulfates studied is given in Table 1 and the thermograms of these compounds are graphically illustrated in Fig. 1. Two types of basic cadmium sulfates were isolated: $CdSO_4 . n\,Cd(OH)_2 . x\,H_2O$ and $CdSO_4 . n\,Cd(OH)_2 . s\,NH_3 . x\,H_2O$. With a change of the basicity, water- and ammonia content in the composition of these compounds, a change of their thermal stability and the parameters of the crystal lattices also occurs. The basic cadmium sulfates change their color from white to brown through thermal treatment at temperatures above 150°C. The thermal decomposition

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The Interaction of Cadmium Sulfate With Ammonia in the Aqueous Medium

S/078/60/005/009/036/040/XX
B017/B058

of ammonia-containing basic cadmium sulfates differs from that of ammonia-free basic cadmium sulfates. The ammonia-containing basic cadmium sulfates lose the entire water at 400° to 450°C. The X-ray phase analyses proved that all basic cadmium sulfates consist of one phase. The roentgenograms of the basic cadmium sulfates are shown in Fig 2 and those of the ammonia-containing basic cadmium sulfates in Fig. 3. The results of the X-ray phase analysis confirm the results of thermal studies. There are 3 figures, 1 table, and 6 references: 5 Soviet and 1 Swiss.

SUBMITTED: June 4, 1959

Card 2/2

KIRAKOSYAN, A.K.

Reaction of precipitation of basic zinc chlorides by ammonia.
Zhur. neorg. khim. 6 no.7:1718-1723 Jl '61. (MIRA 14:7)
(Zinc chloride) (Precipitation(Chemistry))

KIRAKOSYAN, A.K.

Reaction of cupric chloride with ammonia. Zhur.neorg.khim. 6 no.8:1801-1807 Ag '61. (MIRA 14:8)
(Copper chloride) (Ammonia)

S/078/61/006/008/004/018
B121/B203

AUTHORS: Kirakosyan, A. K., Tananayev, I. V.

TITLE: Study of the reaction of zirconium oxychloride with sulfuric acid and with sulfates of ammonium, sodium, iron, and aluminum

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 6, no. 8, 1961, 1808-1812

TEXT: The authors studied the reactions of $ZrOCl_2$ with H_2SO_4 and with sulfates of ammonium, sodium, iron, and aluminum, as well as the formation of basic zirconium salts by the following methods: Sulfates of the elements mentioned were added in rising amounts to zirconium oxychloride solutions of different concentrations. Studies were made at room temperature. The equilibrium between liquid and solid phase was established within 5 - 30 days as dependent on the content of oxychloride in the initial mixture. The reaction of zirconium oxychloride with sulfuric acid and with sulfates of sodium, ammonium, iron, and aluminum in aqueous phase is supposed to proceed in three stages: In the first stage, soluble basic zirconium sulfates are obviously formed which only precipitate at pH = 1.

Study of the reaction...

S/078/61/006/008/004/018
B121/B203

ASSOCIATION: Institut obshchey i neorganicheskoy khimii im. N. S. Kurnakova Akademii nauk SSSR (Institute of General and Inorganic Chemistry imeni N. S. Kurnakov of the Academy of Sciences USSR)

SUBMITTED: June 15, 1960

Card 3/3

KIRAKOSYAN, A.K.

Precipitation of basic cadmium chlorides by ammonia.
Zhur.neorg.khim. 7 no.11:2557-2562 N '62. (MIRA 15:12)
(Cadmium chloride)
(Ammonia)

KIRAKOSYAN, A.K.; YELISEYEV, A.A.

Basic zinc sulfates. Zhur.neorg.khim. 8 no.1:119-129 Ja '63.
(MIRA 16:5)
(Zinc sulfates)

KIRAKOSYAN, A.K.

Precipitation of basic cadmium bromides by ammonia. Zhur.neorg.khim. 8 no.3:622-628 Mr '63. (MIRA 16:4)
(Cadmium bromide) (Ammonia)

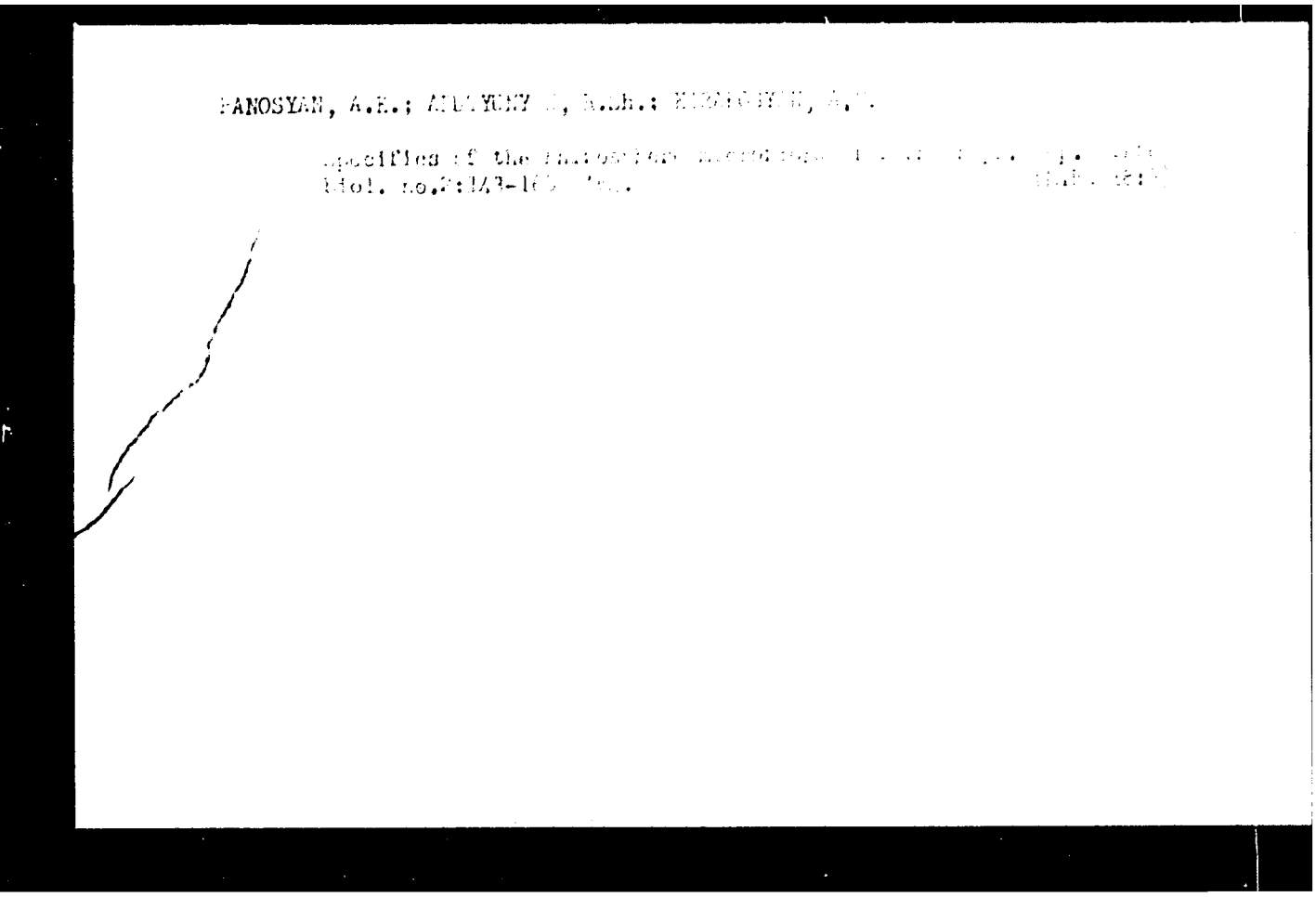
KIRAKOSYAN, A.K.

Precipitation reactions of copper subbromides by ammonia. Zhur.-neorg.khim. 8 no.4:905-910 Ap '63. (MIRA 16:3)
(Copper bromides) (Ammonia) (Precipitation (Chemistry))

KIRAKOSYAN, A.K.; RADOSTINA, L.B.

Reaction of the precipitation of basic zinc bromides by ammonia. Zhur. neorg. khim. 10 no.1:160-165 Ja '65. (MIRA 18:11)

1. Submitted April 12, 1963.



PANOSYAN, A.E.; [illegible]

[illegible]
Biol. no.2:143-16[illegible]

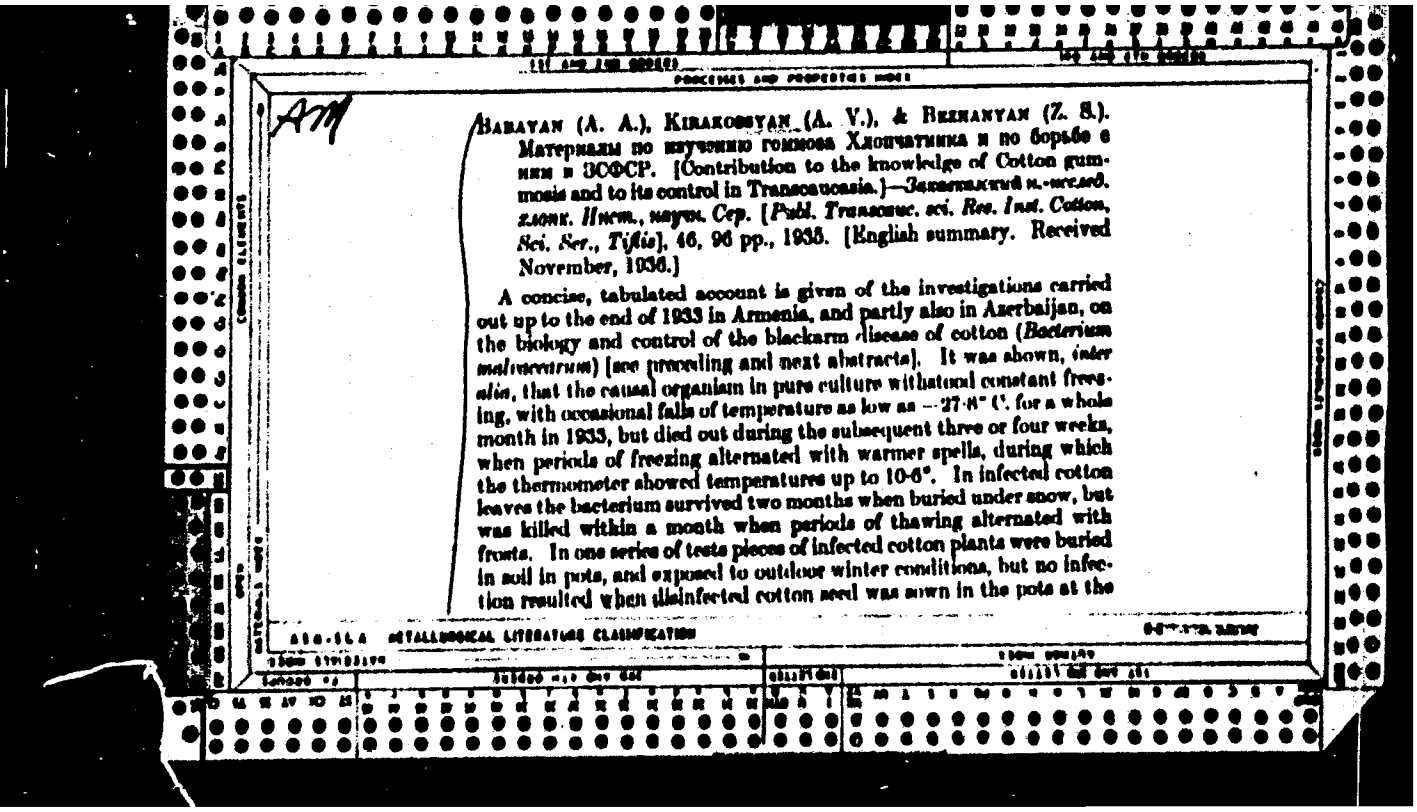
KIRAKOSYAN, A.S.

Impossibility of economic planning under capitalism [in Armenian with summary in Russian]. Nauch.trudy Erev.un. 56:43-69 '56. (MLRA 10:7)

1. Kafedra planirovaniya narodnogo khozyaystva.
(Economic policy)

KIRAKOSYAN, Amushavan Saribekovich

[Planning of the supply of materials and equipment] [Planivanie material'no-tekhnicheskogo snabzheniia. Erevan, Izd-vo "Mitk"] 1965. 182 p. [In Armenian] (MIRA 18:8)



Babayan (A. A.), Kirakosyan (A. V.), & Bezhanyan (Z. S.). Материалы по изучению гоммоза Хлопчатника и по борьбе с ним в ЗСФСР. [Contribution to the knowledge of Cotton gummosis and to its control in Transcaucasia.]—*Закавказский н.-исслед. хлопк. Инст., науч. Сер.* [*Publ. Transcauc. sci. Res. Inst. Cotton, Sci. Ser., Tiflis*], 46, 96 pp., 1935. [English summary. Received November, 1936.]

A concise, tabulated account is given of the investigations carried out up to the end of 1933 in Armenia, and partly also in Azerbaijan, on the biology and control of the blackarm disease of cotton (*Bacterium malvacearum*) [see preceding and next abstracts]. It was shown, *inter alia*, that the causal organism in pure culture withstood constant freezing, with occasional falls of temperature as low as −27·8° C. for a whole month in 1933, but died out during the subsequent three or four weeks, when periods of freezing alternated with warmer spells, during which the thermometer showed temperatures up to 10·6°. In infected cotton leaves the bacterium survived two months when buried under snow, but was killed within a month when periods of thawing alternated with frosts. In one series of tests pieces of infected cotton plants were buried in soil in pots, and exposed to outdoor winter conditions, but no infection resulted when disinfected cotton seed was sown in the pots at the

end of the spring. Furthermore, while living bacteria could be still found in cotton plant debris in the field at the beginning of March, 1933, all were found to be dead in the debris tested at the end of the same month. In another series of experiments it was shown that *Bact. malvacearum* on naturally infected cotton seed withstands a temperature of 90° C. for 5 hours in a dry, and for not less than 1 hour in a damp, atmosphere, while in pure culture it was killed within 20 minutes at 50° and within 10 minutes at 56°.

Delinting the cotton seed with sulphuric acid gave almost complete control of the disease in 1933, and secondary field infection of the seedlings raised from the treated seed was very limited. Seed disinfection of the seed with 1 in 100 formalin is also recommended because of its efficacy, cheapness, and ease of application. The incidence of the disease was markedly increased by poor tillage of the soil, belated thinning out of the cotton stands, and too late flooding. Egyptian and American Upland cotton varieties transplanted from hotbeds were significantly less susceptible to the disease than plants grown in the field. While all the cotton varieties tested were found to be susceptible, the highest degree of resistance was found in the King Karajas variety among the Uplands, and in the Sakel 473 and 465, and Mela beans 1474 varieties among the Egyptians.

PETROSYAN, A.P.; KIRAKOSYAN, A.V.

Specificity of Azotobacter for various agricultural crops. Mikrobiol.zhur. no.4:25-42 '49. (MLRA 9:8)
(AZOTOBACTER)

KIRAKOSYAN, A.V.; PETROSYAN, A.P.; AZARYAN, E.Kh.

Effect of the bacteria of activators on the effectiveness of Azotobacter. Mikrobiol.sbor. no.4:43-65 '49. (MLRA 9:8)
(RHIZOSPHERE MICROBIOLOGY) (AZOTOBACTER)

KIRAKOSYAN, A.V.

Development of micro-organisms in the rhizosphere of some agricultural crops. Mikrobiol.zhur. no.4:67-83 '49. (MLRA 9:8)
(RHIZOSPHERE MICROBIOLOGY)

KIRAKOSYAN, A. V.

Kirakosyan, A. V. and Khachatrian, G. A. "Virus Diseases of Potatoes in Armenia," Izvestiia Akademii Nauk Armianskoi SSR, vol. 3, 1950, pp. 33-334. 20 Erl

SO: SIRA S. 19-53, 15DEC 1953

KIRAKOSYAN, A.V.

Ammonifying bacteria and the process of ammonification in solonchak. A. K. Panosyan and A. V. Kirakosyan. *Mikrobiol. Sbornik Akad. Nauk Armyan. S.S.R.* [illegible] (in Russian) 53-8, in Armenian (1951).—NH_3-producing bacteria were isolated from solonchak in Armenia. Twenty different cultures were studied. The speed of NH_3 production of these bacteria in solonchaks and garden soils of varying consistency was measured. The production of NH_3 varied not only with the consistency of soil employed, but also with the depth of the soil layer. The differences are explained to be due to varying osmotic pressure. The effect of the seasons on ammonification was also investigated. Of the 20 strains of bacteria isolated the large majority were said to be related to *Achromobacter* and *Chromobacterium*.
Lucy C. Merritt

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CARD: 1/1

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USSR / Microbiology. Antibiosis and Symbiosis. F
Antibiotics. Antibiosis.

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 24026

Author : Kirakosyan, A. V.; Karimyan, R. S.
Inst : Not given
Title : Intraspecific and Interspecific Interrelations of Azotobacter

Orig Pub : Mikrobiol. sb. AN ArmSSR, 1958, vyp 9, 3-22

Abstract : The intraspecific and interspecific interrelations were studied in 280 cultures of azotobacter, isolated from various types of soil of the Armenian SSR (190 cultures of Azotobacter chroococcum, 64 of A. nigricans, 21 of A. agile and 3 of A. vinelandii). Antagonistic interrelations were discovered not only between the various types of azotobacter

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but also between the various strains of one and the same type. 32% of tested cultures manifested intraspecific antagonistic action. The largest percentage of intraspecific antagonists was discovered among the representatives of species of Az. chroococcum. The cultures of azotobacter with strong antagonistic action are usually antagonists with respect to the greatest number of cultures intraspecifically, as well as among other types of azotobacter, and are themselves, as a rule, rarely subject to antagonistic action of other cultures of azotobacter. No correlation was discovered between the type of soil and the presence of antagonistic properties in

Card 2/3

KIRAKOSYAN, A.V.; AHANYAN, I.I.

Effect of humidity on the development of [illegible] forms of Azotobacter. Vop. mikrob. [illegible]. no.1:237-248 '[illegible].

(MIRA 7:10)

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Effect of humidity on nitrogen fixation by ecological forms of Azotobacter. Vop.mikrobiol. no.1:249-260 '61.

(MIRA 27:10)

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New varieties of Azotobacter agile from soils of the Armenian S.S.R. Izv. AN Arm. SSR. Biol. nauki 17 no.4:33-42 Ap '64. (MIRA 17:6)

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Intraspecific relationships in Azotobacter. Vop. mikrobiol. no.2: 73-86 '64. (MIRA 18:3)

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Effect of pH medium on the development of ecologic forms of Azotobacter chroococcum. Vop. mikrobiol. no.2:87-104 '64. (MIRA 18:3)